Speaker Profile: Martin Larsen

Call him a “cave man,” but Martin Larsen isn’t in the dark about the connection between farming practices, pollution prevention and profitability. In fact, this southern Minnesota farmer regularly goes underground to check out how conservation practices (or the lack thereof) on the land impact water quality below.

“I want to see what goes on down there,” said Larsen, 44, a fifth-generation farmer who raises corn, soybeans and small grains on 1,400 acres near Byron, Minnesota. As a member of the “Oat Mafia,” he’s interested in diversifying his crop rotations with small grains and is focused on water quality improvement.

Going underground is part adventure and part research for this farmer/caver, who spends hundreds of hours a year exploring the subterranean regions of southeastern Minnesota. “For me, the science connects to water, and then it connects to farming, and then it connects to caving.”

It all started about 12 years ago in an effort to unravel a quandary. “Someone’s water well got polluted with manure-contaminated runoff,” said Larsen, who’s also a conservation technician with the Olmsted County Soil and Water Conservation Distinct. “I wanted to know how the manure got there.”

Larsen was intrigued by the research of area hydrologists who were dropping fluorescent dyes into sinkholes and disappearing streams. Their goal? Determine where and how quickly groundwater is moving. From the time that dye enters the ground until it exits in a spring or well—which can take hours, days, months or even a year—little is known about its movements.

Larsen wanted to see firsthand what’s happening underground. “Some of this moisture will eventually make its way back to the surface as drinking water,” he noted. “In southeastern Minnesota, some of the water coming out of faucets is sourced from the groundwater that’s flowing through these caverns.”

Managing the pollution problem

Through the years, Larsen’s cave explorations have shined a light on the connection between water quality and farming practices in southeastern Minnesota.

It’s not always a pretty picture. As Larsen and other cavers have explored the karst geology underlying southeastern Minnesota’s topsoil, they’ve had to wade through putrid foam created by manure and other pollutants. They’ve also had to pick their way across wet cave floors that Larsen calls “demonic slip-and-slides,” due to all the eroded soil.

Larsen has taken samples of cave drips that show nitrate levels well above drinking water standards. His underground observations reinforce what scientific studies of the karst region have shown: levels of contaminants such as nitrates are increasing, and they’re going deeper into the groundwater system.

All this led Larsen to ask some key questions, including what management practices reduce nitrates below the rooting zone? Fortunately, Larsen’s dual roles as a farmer and a conservation technician put him in a unique position to help improve the quality and quantity of water making its way underground.

Forming the Oat Mafia

Larsen is recognized for his expertise in regenerative agriculture, no-till farming and cover cropping. A sustainability

advocate, he's a member of a regional network that's bringing hundreds of farmers together around water-friendly farming practices that also boost farm profitability.

These farmers are proving the viability of raising a third crop in rotation at scale. It started in 2020, when Larsen and two neighbors seeded oats. Call it "back to the future." When Larsen was growing up, many local farmers grew oats for livestock feed and bedding. Over time, however, crop rotations shifted more to corn and soybeans.

Corn and soybeans prices were trending lower by 2020, however, so the idea of raising a crop that required fewer inputs was appealing. The farmers were also interested in water quality and were curious about stacking another eco-friendly practice on their farm, in addition to cover crops and no-till.

Larsen started with 45 acres of oats. Another neighbor grew 30 acres, while another neighbor grew 60 acres. These conservation-minded producers, who all farmed in the Byron, Minnesota, area, formed the "Oat Mafia."

"Getting out of just a corn-soybean system is good," Larsen said. "Oats and other small grains are very 'nitrate smart.' Oats can root 2 to 3 feet deep, and their fibrous root systems are good at scavenging up nitrates."

Larsen views oats as a viable way to diversify and manage risk. "You've got three crops instead of two, and it takes fewer inputs to grow oats," he noted. "Oats also spread out my workload, and there's already a market for this crop."

Although Larsen and his neighbors didn't know it at the time, their actions inspired a bigger movement for the region. More farmers decided to bring oats back into their crop rotation. The effort got a big boost with a new, local cost-share opportunity.

The Olmsted County Soil and Water Conservation Distinct (where Larsen works) launched a program aimed at lowering nitrates in groundwater. This new program reimbursed farmers $100 per acre to put in clover after oats.

While the oats themselves wouldn't sell at a high price, the impressive cost-share payment, coupled with high nitrogen prices that year, meant oats and clover continued to pique the interest of a growing number of local producers.

Hear from Larsen directly at the 2026 ProfitProAG Winter Conference

Local farmers like Larsen played an important role in designing the Olmsted County groundwater and soil health plan. Their input helped establish benchmarks for conservation payments.

Larsen has also testified at Minnesota's state capitol to secure more funding for additional water quality/conservation efforts in the state. This led to a $2.8 million grant that covers 11 counties. "This system is outcome based, so you get paid more as you implement more conservation practices," Larsen said.

This program pays a minimum of $55 an acre and maxes out at $105 an acre. Farmers can receive higher payments when they implement more conservation practices. "You have a menu of options," Larsen said.

Farmers can get more money if they seed a multi-species mix of cover crops instead of just one cover crop. They receive more cost-share if they don't terminate their cover crops at 2 inches tall and plant green into cover crops instead. More money is available if they graze cover crops and use other conservation-friendly management practices. Farmers are also required to attend one training session a year (continuing education) to qualify for these cost-share dollars.

All this fits with Larsen's big-picture goals for his own farm, which include reducing nitrate runoff, improving water quality, making his farm more resilient, and building enough profitability in his farming business to hand the operation down to the next generation.

Larsen will share his story when he speaks at the "Reclaiming Profitability: Farming Smarter" seminar at ProfitProAG in late February 2026. "I'm going to talk about things I've seen that work well," said Larsen, who will also get into the nitty-gritty, from what kinds of row cleaners to use to specific varieties he plants. "Learning from other farmers is key. It's also really gratifying to help people."

Sign up for "Reclaiming Profitability: Farming Smarter in 2026"

Want to hear more, directly from Martin Larsen and other like-minded farmers? Attend the ProfitProAG Winter Conference: "Reclaiming Profitability: Farming Smarter" seminar on Feb. 24, 2026, at ProfitProAG in Albert Lea, Minnesota.

Join us for a full day of practical insights and hands-on learning designed to help farmers reclaim profitability in today's challenging ag economy. Hear directly from growers and experts who are putting regenerative practices to work, and discover how soil health, crop diversity, and biological solutions can boost ROI while protecting your land for the future.